CITY OF MANTECA

PUBLIC WORKS DEPARTMENT

September 10, 2009

Mr. Jim Marshall
Senior Engineer
California Regional Water Quality Control Board
Central Valley Region
11020 Sun Center Drive #200
Rancho Cordova, CA 95670

SUBJECT: Comments on Tentative Order – Waste Discharge Requirements for the City of Manteca Wastewater Quality Control Facility, San Joaquin County.

Dear Mr. Marshall:

The City of Manteca (City) appreciates the opportunity to provide comments on the Tentative Waste Discharge Requirements (Tentative Order) and associated Time Schedule Order (TSO) for the City's Wastewater Quality Control Facility (WQCF). This letter presents the City's major issues with the Tentative Order, while Attachment 1 presents the City's comments regarding technical corrections and clarifications.

The Proposed Effluent Limitations for Electrical Conductivity are Inconsistent with the State Water Board Order Governing Manteca's Discharge.

The Tentative Order includes proposed monthly average water-quality based effluent limitations (WQBELs) for electrical conductivity (EC) of 700 µmhos/cm from April 1 through August 31 and 1,000 µmhos/cm from September 1 through March 31. The proposed limitations are based upon a Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (Bay-Delta Plan). These effluent limitations are inconsistent with the findings of the State Water Resources Control Board's (State Water Board) Water Quality Order 2005-005 (2005 Manteca Order), which specifically addressed the applicable EC requirements for Manteca. The Bay Delta Plan was in place at the time the 2005 Manteca Order was issued, and the State Water Board concluded that with respect to Manteca's discharge, the Plan *does not compel* imposition of the 700 µmhos/cm limitation for EC. "Although the conditions in waste discharge permits are established to implement relevant water quality control plans, the effluent limitations in permits may differ from the numerical water quality objectives established in a Basin Plan for various reasons." (2005 Manteca Order at pp. 12-13.) The 2005 Manteca Order remains in full force and effect, and the year-round 1,000 µmhos/cm EC limitation established by the 2005 Manteca Order should be included in the Tentative Order.

The 2005 Manteca Order Governs the Issuance of the City's Permit.

The recently adopted State Water Board Order regarding the City of Tracy Wastewater Treatment Plant does not change the regulatory landscape for Manteca. (Order WQ 2009-0003 "Tracy Order".) The Tracy Order directed the Regional Water Board to apply the southern Delta water quality objectives for EC to the City of Tracy's discharge. However, the Tracy Order is not applicable to Manteca, which is governed by a quasi-adjudicatory decision of the State Water Board specific to Manteca's particular circumstances. While the 2005 Manteca Order is not precedential with regard to other dischargers, *it is controlling* with regard to the Manteca WQCF. The State Water Board decision relied on " the unique background and facts in this case", and the circumstances existing in 2005 remain true today with regard to the City's discharge. (2005 Manteca Order at p.15.) The conclusions reached by the State Water Board in the 2005 Manteca Order are equally applicable to the current conditions and circumstances, in that "(1) assuring compliance with the 700 µmhos/cm EC limitation in the City's permit for April through August would probably require construction and operation of a reverse osmosis treatment plant for at least a portion of the City's effluent at a very large cost; and (2) because of the relatively high salinity of the receiving water and the relatively small portion of flow provided by the City's discharge, the City's use of reverse osmosis would have relatively little effect on the EC of water in the river." (2005 Manteca Order, p. 12). The extremely minor impact of the City's discharge on the river is confirmed by the State Water Board's own data, which indicates that all of the POTWs discharging to the San Joaquin River *collectively* contribute less than one percent of the total salt loading. (San Joaquin River Annual Salt Loading WY 1985-1995, included in Materials for April 15, 2009 Special Meting of the State Water Resources Control Board regarding Salinity Issues at p. 0009.)

Moreover, the City strongly disputes the State Water Board's assertion in the Tracy Order that the 2006 amendments to the Bay Delta Plan, which to date has not been approved by the U.S. EPA, involved an affirmation of the EC objectives and their applicability to POTWs. (Tracy Order, p.8, fn 12.) Nothing that has occurred subsequent to adoption of the Manteca Order has altered in any way the essential material facts underpinning the 2005 Manteca Order. The Tracy Order notes that the objectives are "unchanged" from the 1991 Bay-Delta Plan; the same objectives were in effect when the Manteca Order was adopted. (Tracy Order at p. 12.)

In fact, the southern Delta salinity standards were first introduced in the 1978 Delta-Suisun Marsh Plan, and are currently being reevaluated by the State Water Board. Thus, no subsequent developments alter the State Water Board's conclusion in the 2005 Manteca Order that the 700 µmhos/cm should not apply to the City's discharge. The EC objectives for the southern Delta are in flux, and recent scientific investigations indicate that the 700 µmhos/cm is more restrictive than needed to protect beneficial uses. As the Regional Water Board is well aware, the State Water Board is currently in the process of reviewing the salinity objectives in the Bay Delta Plan. (See "*Salt Tolerance of Crops in the Southern Sacramento-San Joaquin Delta*" by Dr. Glenn Hoffman dated July 14, 2009 (Hoffmann Report).) The Hoffman Report considers several approaches to determine salinity requirements for the conditions specific to the southern Delta to support the agricultural beneficial use. The draft recommended EC objectives for crop protection during the summer irrigation season range from 800 µmhos/cm to

1,400 µmhos/cm. (Id. at pp. 76-77). The State Water Board has begun a series of workshops to consider the Hoffman Report and reevaluate the southern Delta EC objectives as appropriate.[1]

Manteca Has Relied in Good Faith on the 2005 Manteca Order and Has Significantly Reduced the Salinity of its Discharge.

The City has undertaken significant operational changes and irretrievably committed resources to comply with the effluent limitation of 1,000 µmhos/cm. A review of the monitoring record indicates that the EC levels measured in the WQCF effluent have steadily decreased in recent years (see **Figure 1**). Prior to mid-2005, the City relied on groundwater as its sole potable water source. The groundwater in the area is high in total dissolved solids (TDS), and thus caused EC levels in the effluent to exceed the WQCF's current 1,000 µmhos/cm EC effluent limit. Beginning in August 2005, the City began shifting the source of its potable water supply from groundwater to include some surface water from the newly constructed South San Joaquin Irrigation District surface water treatment plant. Moreover, the City constructed the Industrial Pipeline System, in part to eliminate the pollutants of concern (including EC) discharged to the WQCF by the City's largest industrial discharger, Eckert Cold Storage (Eckert). The Industrial Pipeline System, which has been fully operational since April 2007, completely separated from the WQCF the food processing wastes from Eckert for direct application to agricultural fields. Additionally, in September 2007, the WQCF was upgraded to include UV disinfection and tertiary treatment through the installation of filters. As illustrated in **Figure 1**, since taking these actions, the City has achieved a reduction in WQCF effluent EC from an average of approximately 1,100 µmhos/cm to an average of less than 800 µmhos/cm, more than a 27% reduction. The City has been in full compliance with the 1,000 µmhos/cm year-round EC effluent limitation and has far exceeded the stated goal of the 1991 Bay-Delta plan to reduce salt discharged in the southern Delta by ten percent. (Manteca Order at p. 7.)

[1] While we disagree with the approach to establishing the EC effluent limitations, the City appreciates the inclusion of Reopener Provision C.1.h to acknowledge that the South Delta salinity standards, which form the basis for the prescribed EC limits, are under review and that the permit may be reopened to revise the effluent limitations consistent with any modified objectives.

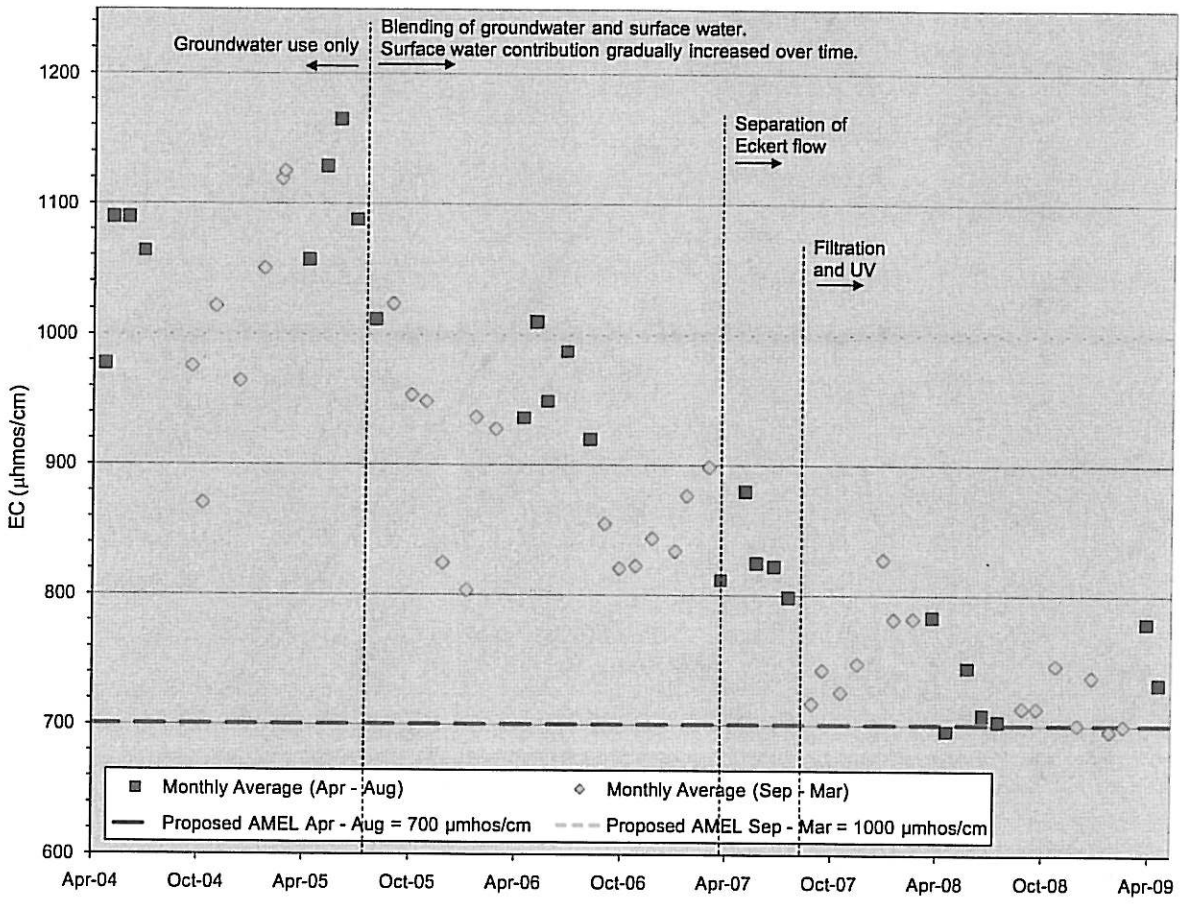

Figure 1. Manteca WQCF Effluent EC Levels, April 2004 to May 2009

Though EC levels have been significantly decreased through blending of surface water into the Manteca potable water supply and through the removal of Eckert's wastewater from the WQCF, the decrease is not sufficient to ensure compliance with the proposed EC effluent limitation of 700 µmhos/cm April through August. To further lower EC levels during the summer months to meet the proposed effluent limitation, the WQCF would have to use microfiltration and reverse osmosis (MF/RO) for 2.5 MGD of the WQCF effluent. Initial construction costs for the MF/RO facilities are estimated at $33.4 million with an additional $3.7 million in annual operation and maintenance costs. It should be noted that these costs do not account for the disposal of approximately 0.5 MGD of highly saline brine that will result from the MF/RO process. Even with this expenditure there is only marginal improvement[2] in EC receiving water levels gained by the seasonal use of these facilities, which does not justify the costs of constructing and operating the MF/RO facilities, nor warrant the undesirable environmental effects of the brine disposal.

[2] Based on the City's 2008 Antidegradation Analysis, the incremental improvement in EC in the river during critical dry flow conditions is estimated to be about 1%; during dry normal years the improvement is estimated at 0.5%.

The Existing Effluent Limitation of 1,000 µmhos/cm is Lawful, Enforceable and Protective of Beneficial Uses.

In contrast to the permit addressed in the Tracy Order, Manteca's existing permit includes a numeric effluent limitation for EC of 1,000 µmhos/cm year-round. This limitation is enforceable and has already been deemed by the State Water Board as an appropriate limitation to implement the EC objectives in the southern Delta (2005 Manteca Order at p. 22.). As the State Water Board found, "because of the relatively high salinity of the receiving water and the relatively small portion of flow provided by the City's discharge" further reductions in EC by the City would have "little effect on the EC of water in the river." (*Id.* at p. 12.) Even without taking into account the *de minimis* nature of the City's contributions, the Hoffman Report demonstrates that the City's current discharge of EC is well within levels protective of the most sensitive beneficial uses. The year-round EC effluent limit of 1,000 µmhos/cm established by the 2005 Manteca Order should be implemented in the Tentative Order. (IV.A.1 and IV.A.2, Table 6 and Table 7).

In summary, the City recognizes the challenges the Regional Water Board faces in addressing the complex problem of salinity, and we understand that long-term solutions to the southern Delta salinity problems have not yet been determined. The City is closely following the progress of the Central Valley basin planning effort known as CV-SALTS, and intends to participate in the stakeholder process. The City comes to the table already having made significant improvements to reduce salinity levels by more than 25 percent over the last four years. For all of the reasons stated above, we urge the Regional Water Board to retain the year-round 1,000 µmhos/cm EC effluent limitation in the revised Tentative Order. In the event that the Regional Water Board disagrees and imposes the 700 µmhos/cm limitation for EC in the summer months, the City requests that the Board also adopt a Time Schedule Order allowing the City time to come into compliance. A justification and infeasibility analysis for the TSO are provided in Attachment 2.

The City's Ponds and Land Application Activities are Exempt from Title 27

The City agrees with the Regional Water Board's determination that the WQCF ponds are exempt from Title 27. (Tentative Order at pp. F-13-F-14.) The Regional Water Board has applied the conditional wastewater exemption, set forth in section 20009(b), to the Secondary Effluent Equalization Pond (SEEP), Secondary Effluent Storage Pond (SESP), and the food processing waste pond. However, the City contends that:

- The SEEP falls within the sewage exemption in 20009(a);
- The SESP falls within the reuse exemption in 20009(h); and,
- The land application activities also fall within the reuse exemption.

We recognize that the State Water Board's recent order regarding the City of Lodi (Lodi Order) has altered the manner in which the Regional Water Boards are to apply the Title 27 exemptions. (Order WQ 2009-0005.) However, a number of relevant facts distinguish Manteca's circumstances from those of Lodi, and these facts support application of the sewage and reuse exemptions in a manner consistent with the State Water Board's Lodi Order.

The SEEP: In rejecting the application of the sewage exemption to Lodi's recycled water storage pond, the State Water Board read the exemption to apply only to facilities actually involved in the treatment of waste. (Order WQ 2009-0005 at p.9.) The State Water Board based its determination that Lodi's ponds did not satisfy the exemption because they were post-treatment. As the Tentative Order notes, however, the Manteca WQCF SEEP is used to store effluent "prior to tertiary treatment" and that it is a "necessary part of the Facility's wastewater treatment system." (Tentative Order at p. F-13.) Thus, consistent with the Lodi Order, the SEEP meets the criteria for application of the sewage exemption.

The SESP: The City agrees that under the Lodi Order, the SESP would not qualify for the sewage exemption because it is used to store recycled water and is "post treatment".[3] However, the SESP meets the criteria for the reuse exemption because the pond holds only municipal effluent that has been treated at the WQCF and the water is being stored for beneficial reuse. In Lodi's case, the State Water Board refused to apply the reuse exemption because some of the wastewater stored in Lodi's pond was industrial waste that the State Water Board alleged was untreated. (Order WQ 20009-0005 at p. 9.) That is not the case in Manteca, as only secondary treated recycled water is stored in the SESP.

Land Application: The land application of treated effluent and the food processing waste stream is also exempt under the reuse exemption of section 20009(h). The City is aware that the State Water Board concluded that Lodi's land application did not fall within the reuse exemption because it believed that a portion of the industrial waste stream was not treated. (Order WQ 2009-005 at p. 9.) To be clear, in Manteca's case, the reuse exemption does apply because the food processing wastewater undergoes treatment prior to land application. Treatment occurs both at Eckert's facility and in the Industrial Pipeline System storage pond, which is located at the WQCF. As the Tentative Order recognizes, treatment at Eckert's facility includes BOD and suspended solids reduction through mechanical screening and through a dissolved air flotation system. In addition, pH neutralization is achieved through chemical addition. In the Industrial Pipeline System storage pond, additional BOD reduction is achieved through mechanical aerators and chemical addition. The mechanical aerators and chemical addition also serve to reduce odors.

The Lodi Order should not be read to constrain the Regional Water Board to apply only the wastewater exemption whenever issuing WDRs. To the contrary, the State Water Board made clear that "the wastewater exemption in section 20090(b), rather than the sewage or reuse exemptions, is the most appropriate exemption to consider applying to *Lodi's* land disposal activities." (Id. at p.8.) The Lodi Order rested on specific findings regarding Lodi's activities – mixing untreated waste streams with treated effluent – that are not present in Manteca's case. The difference between application of the sewage and reuse exemptions rather than the wastewater exemption is not without importance. The wastewater exemption is conditional, requiring the City to demonstrate compliance with the Basin Plan prior to permit issuance. The portion of the sewage exemption, as applied to wastewater treatment facilities, and the reuse exemption do not require such a demonstration, and thus the selection of the applicable exemption means the difference between the City being compliant with the regulations or out of

[3] The City's agreement here should not be construed to mean that the City supports the State Water Board's findings and determinations in the Lodi Order. The City contends that the ponds are part of the wastewater treatment facility and therefore subject to the portion of the sewage exemption for such facilities. However, we realize that the Regional Water Board must implement the State Water Board's order unless it is modified or rescinded.

compliance. For these reasons, the City requests that the Tentative Order be amended to apply the wastewater treatment facilities portion of the sewage exemption from Title 27 to the SEEP and the reuse exemption to the SESP and the land application. To the extent that the Tentative Order is revised to reflect that the City's activities are already exempt from Title 27 in the manner discussed above, the compliance schedule provisions in the Tentative Order for compliance with Title 27 are not necessary and should be removed. Instead, the compliance schedule provisions should be revised to allow for compliance with final groundwater limitations.

The Groundwater Limitation for Total Ammonia is an Improper Interpretation and Application of the Narrative Taste and Order Objective.

The Tentative Order states that the ammonia groundwater limitation is based on a study contained in the Journal of Applied Toxicology by Amoore and Hautala. (*Odor as an Aid to Chemical Safety: Odor Thresholds Compared with Threshold Limit Values and Volatilities for 214 Industrial Chemicals in Air and Water Dilution*, Journal of Applied Toxicology, Vol. 3, No.6, (1983).) (Tentative Order at p. F-71.) The City is very concerned with the use of this study to interpret the narrative taste and odor objective for groundwater because the ammonia groundwater limitation in the Tentative Order is not consistent with the intent and purpose of the article, as published in the Journal of Applied Toxicology. The purpose of the Journal article is to provide quantitative data on odor thresholds of potentially hazardous chemical vapors and gases. The intent is to merely determine the concentration of the chemical to trigger industrial health and safety specialists to further determine if threshold limit values are exceeded. The ammonia value in the article is the "concentration of the substance in water which will generate the air odor threshold concentration in the headspace of a stoppered flask." (Amoore and Hautala.) Nothing in the article even suggests or implies that ammonia at such concentrations in water will impair municipal or domestic uses of groundwater due to adverse odors. Thus, the Tentative Order improperly takes a numeric criterion developed for an unrelated purpose and applies it to groundwater. This application is not consistent with the Basin Plan's policy for interpreting narrative objectives and is not consistent with the purposes of the published article. (See e.g. *In the Matter of the City of Vacaville*, Order WQO 2002-0015 at pp. 47-48.)

The Monitoring Frequencies for Chronic Whole Effluent Toxicity Investigations Should be Reduced.

The monitoring frequencies listed in Special Provision 2.a. of the Tentative Order constitute a significant increase over the requirements of the WQCF's current TRE Workplan. The proposed increases in monitoring frequency are excessive and represent an unwarranted financial burden. Accelerated monitoring, as currently defined in the TRE Workplan, constitutes "samples collected on a monthly basis for testing over three months using the toxicity species that exhibited toxicity." This requirement is protective and appropriate. Provision 2.a.iii should be revised as follows:

> "iii.... Accelerated monitoring shall consist of ~~four~~ three chronic toxicity tests conducted ~~once every 2 weeks~~ monthly using the species that exhibited toxicity."

Similarly, under the current TRE Workplan, accelerated monitoring continues until three consecutive tests do not exceed the monitoring trigger. The City would like to continue this practice and requests that Provision 2.a.iii.(b) be revised to state:

" (b).... Discharger shall .....continue accelerated monitoring until ~~four~~ three consecutive accelerated tests do not exceed the monitoring trigger....."

The current TRE Workplan establishes a TRE trigger as any result greater than one toxicity unit (TUc). An exceedance of this first trigger prompts accelerated monitoring. Further, if an accelerated toxicity test shows toxicity greater than 2.0 TUc (a second trigger), a TRE investigation is initiated. The TIE trigger was set up this way, since a toxicity result of 2.0 TUc is generally regarded as the threshold for obtaining meaningful results from a TIE. A lower value does not provide a sufficient amount of toxicity to aid the investigative process and ensure a successful TIE. Chronic toxicity tests are very costly. Each species costs approximately $2,000 per test, and TIE costs start at $10,000 per species per event and go up from there depending on the duration of the investigation. To protect the City from having to initiate unnecessary and costly TIEs, we request that Provision 2.a.iii.(c) be clarified as follows:

"(c) If the result of any accelerated toxicity test exceeds ~~the~~a monitoring trigger of 2.0 TUc (TUC = 100/EC50 or 100/IC50), the Discharger shall cease accelerated monitoring and begin a TRE to investigate the cause(s) of, and identify corrective actions to reduce and eliminate effluent toxicity...."

The WQCF toxicity tests currently use lab water as dilution water. The receiving water is not used because it has demonstrated toxicity when used as dilution water in the past. Receiving water toxicity is monitored quarterly, as a reference, and it has consistently been shown to cause excessive growth in one of the test species, the *Selenastrum Capricornutum* algae. Since the receiving water is known to cause toxicity, the City requests that it not need to be tested for toxicity at the time of each chronic toxicity test. As such, we request that the Chronic Toxic Testing Requirement V. B.7 and Table E-4 in Attachment E of the Draft Permit be revised as follows:

"Dilutions – The chronic toxicity testing shall be performed using the dilution series identified in the table, below. ~~The receiving water~~ Since the receiving water has consistently shown to be toxic in the past, laboratory control water shall be used as the diluent ~~(unless the receiving water is toxic), unless initial tests results indicate that the receiving water is toxic~~.

~~If the receiving water is toxic, laboratory control water may be used as the diluent, in which case, t~~The receiving water should still be sampled and tested on a quarterly basis to provide evidence of its toxicity.

Table E-4. Chronic Toxicity Testing Dilution Series

Sample	Dilutions (%)					Controls	
	100	75	50	25	12.5	Receiving Water	Laboratory Water
% Effluent	100	75	50	25	12.5	0	0
% ~~Receiving~~ Laboratory Control Water	0	25	50	75	87.5	100	0
% Laboratory Water	0	0	0	0	0	0	100

Bioaccumulation Equivalence Factors (BEFs) Should be Added to the Congener Toxicity Calculation for Dioxin and Furans.

The City requests that bioaccumulation equivalence factors (BEFs) be added to the congener toxicity calculation in Attachment J of the Draft Permit. A BEF accounts for the bioavailability of each congener in relation to 2,3,7,8-TCDD much like a toxic equivalency factor (TEF) accounts for the toxicity of each congener in relation to 2,3,7,8-TCDD. The USEPA has employed both BEF and TEF in the equivalents calculation in the Great Lakes region for more than a decade. Region 2 is currently in the process of adopting BEF and TEF calculations into their Basin Plan. For your information, we have included the Region 2 Draft Fact Sheet in Attachment 3.

The City requests that the calculation specifications be revised as follows:

"In addition, the Discharger shall multiply each measured or estimated congener concentration by its respective TEF and BEF values and report the sum of these values."

In addition, the Table in Attachment J should be revised as follows:

Toxic Equivalency Factors and Bioaccumulation Equivalency Factors for 2,3,7,8-TCDD Equivalents

Dioxin/Furan Congener	Toxicity Equivalency Factor (TEF)	Bioaccumulation Equivalency Factor (BEF)
2,3,7,8-TCDD	1.0	1.0
1,2,3,7,8-PeCDD	1.0	0.9
1,2,3,4,7,8-HxCDD	0.1	0.3
1,2,3,6,7,8-HxCDD	0.1	0.1
1,2,3,7,8,9-HxCDD	0.1	0.1
1,2,3,4,6,7,8-HpCDD	0.01	0.05
OCDD	0.0003	0.01
2,3,7,8-TCDF	0.1	0.8
1,2,3,7,8-PeCDF	0.03	0.2
2,3,4,7,8-PeCDF	0.3	1.6
1,2,3,4,7,8-HxCDF	0.1	0.08
1,2,3,6,7,8-HxCDF	0.1	0.2
2,3,4,6,7,8-HxCDF	0.1	0.7
1,2,3,7,8,9-HxCDF	0.1	0.6
1,2,3,4,6,7,8-HpCDF	0.01	0.01
1,2,3,4,7,8,9-HpCDF	0.01	0.4
OCDF	0.0003	0.02

Thank you for your consideration of these comments. We look forward to reviewing a revised version of the Tentative Order that incorporates our requested changes. Please do not hesitate to contact me if you have any questions or need additional information.

Sincerely,

Phil Govea

Phil Govea, P.E.
Deputy Director of Public Works – Utility Engineering

Attachments:

1. Technical Comments and Clarifying Changes
2. Infeasibility Analysis and Compliance Schedule Justification for a Time Schedule Order
3. Draft Permit Amendment, Dioxin Fact Sheet, Region 2 RWQCB

cc: Gayleen Perreira, Regional Water Board
Mark Houghton, City of Manteca
Mack Walker, Larry Walker Associates
Roberta Larson, Somach Simmons & Dunn